

REFERENCES

- Abdul Wahab, M., Abdul Rahman, S. and Ahmad, A. (2017). Biomethane Purification Using PVDF/Pebax 1657 Thin Film Composite Membrane. *Journal of Physical Science*, 28(Suppl. 1), 39-51.
- Ahmadpour, E., Shamsabadi, A., Behbahani, R., Aghajani, M., & Kargari, A. (2014). Study of CO₂ separation with PVC/Pebax composite membrane. *Journal of Natural Gas Science and Engineering*, 21, 518-523.
- Ahmadpour, E., Sarfaraz, M. V., Behbahani, R. M., Shamsabadi, A. A., & Aghajani, M. (2016). Fabrication of mixed matrix membranes containing TiO₂ nanoparticles in Pebax 1657 as a copolymer on an ultra-porous PVC support. *Journal of Natural Gas Science and Engineering*, 35, 33-41.
- Akhtar, F., Kumar, M., & Peinemann, K. (2017). Pebax ® 1657/Graphene oxide composite membranes for improved water vapor separation. *Journal of Membrane Science*, 525, 187-194.
- Amirilargani, M., Saljoughi, E., Mohammadi, T., & Moghbeli, M. (2009). Effects of coagulation bath temperature and polyvinylpyrrolidone content on flat sheet asymmetric polyethersulfone membranes. *Polymer Engineering & Science*, 50(5), 885-893.
- Arribas, P., Khayet, M., García-Payo, M., & Gil, L. (2015). Novel and emerging membranes for water treatment by electric potential and concentration gradient membrane processes. *Advances in Membrane Technologies for Water Treatment*, 287-325.
- Baker, R. (2004). Membrane technology and applications. Chichester: John Wiley & Sons.
- Bakeri, G., Ismail, A., Matsuura, T., Abdullah, M., Ng, B., & Mashkour, M. (2015). Effect of PVDF blending on the structure and performance of PEI hollow fiber membrane in CO₂ separation process. *Chemical Engineering Research and Design*, 104, 367-375.

- Bakeri, G., Ismail, A., Shariaty-Niassar, M., & Matsuura, T. (2010). Effect of polymer concentration on the structure and performance of polyetherimide hollow fiber membranes. *Journal of Membrane Science*, 363(1-2), 103-111.
- Baş, D., & Boyacı, İ. (2007). Modeling and optimization I: Usability of response surface methodology. *Journal of Food Engineering*, 78(3), 836-845.
- Basu, A., Akhtar, J., Rahman, M., & Islam, M. (2004). A Review of Separation of Gases Using Membrane Systems. *Petroleum Science and Technology*, 22(9-10), 1343-1368.
- Bernardo, P., Jansen, J., Bazzarelli, F., Tasselli, F., Fuoco, A., & Friess, K. et al. (2012). Gas transport properties of Pebax®/room temperature ionic liquid gel membranes. *Separation and Purification Technology*, 97, 73-82.
- Bezerra, M., Santelli, R., Oliveira, E., Villar, L., & Escaleira, L. (2008). Response surface methodology (RSM) as a tool for optimization in analytical chemistry. *Talanta*, 76(5), 965-977.
- Bhan, M., Satija, S., Garg, C., Dureja, H., & Garg, M. (2017). Optimization of ionic liquid-based microwave assisted extraction of a diterpenoid lactone-andrographolide from *Andrographis paniculata* by response surface methodology. *Journal of Molecular Liquids*, 229, 161-166.
- Broens, L., Altena, F., Smolders, C., & Koenhen, D. (1980). Asymmetric membrane structures as a result of phase separation phenomena. *Desalination*, 32, 33-45.
- Burggraaf, A. (1996). Chapter 9 Transport and separation properties of membranes with gases and vapours. *Membrane Science and Technology*, 331-433.
- Car, A., Stropnik, C., Yave, W., & Peinemann, K. (2008). Pebax®/polyethylene glycol blend thin film composite membranes for CO₂ separation: Performance with mixed gases. *Separation and Purification Technology*, 62(1), 110-117.
- Car, A., Stropnik, C., Yave, W., & Peinemann, K. (2008). PEG modified poly(amide-b-ethylene oxide) membranes for CO₂ separation. *Journal of Membrane Science*, 307(1), 88-95.

- Carroll, A., Przeslawski, R., Radke, L., Black, J., Picard, K., & Moreau, J. et al. (2014). Environmental considerations for subseabed geological storage of CO₂: A review. *Continental Shelf Research*, 33, 116-128.
- Chen, Y., Wang, B., Zhao, L., Dutta, P., & Winston Ho, W. (2015). New Pebax®/zeolite Y composite membranes for CO₂ capture from flue gas. *Journal of Membrane Science*, 495, 415-423.
- Coates, J. (2006). Interpretation of Infrared Spectra, A Practical Approach. *Encyclopedia Of Analytical Chemistry*.
- Dai, Y., Jian, X., Zhang, S., & Guiver, M. (2002). Thin film composite (TFC) membranes with improved thermal stability from sulfonated poly(phthalazinone ether sulfone ketone) (SPPEK). *Journal of Membrane Science*, 207(2), 189-197.
- De Lorenzo, L., Tocci, E., Gugliuzza, A., & Drioli, E. (2012). Assembly of nanocomposite PEBAX membranes: A complementary study of affinity and clusterization phenomena. *Journal of Membrane Science*, 421-422, 75-84.
- Delkash, M., Zhou, B., & Singh, R. (2016). RETRACTED: Measuring landfill methane emissions using satellite and ground data. *Remote Sensing Applications: Society and Environment*, 4, 18-29.
- Deublein, D., & Steinhauser, A. (2011). Biogas from Waste and Renewable Resources. Weinheim: Wiley-VCH Verlag.
- Dorosti, F., Omidkhah, M., & Abedini, R. (2014). Fabrication and characterization of Matrimid/MIL-53 mixed matrix membrane for CO₂/CH₄ separation. *Chemical Engineering Research and Design*, 92(11), 2439-2448.
- Dorosti, F., Omidkhah, M., & Abedini, R. (2015). Enhanced CO₂/CH₄ separation properties of asymmetric mixed matrix membrane by incorporating nano-porous ZSM-5 and MIL-53 particles into Matrimid®5218. *Journal of Natural Gas Science and Engineering*, 25, 88-102.
- Ebadi Amooghin, A., Omidkhah, M., & Kargari, A. (2015). The effects of aminosilane grafting on NaY zeolite–Matrimid®5218 mixed matrix membranes for CO₂/CH₄ separation. *Journal of Membrane Science*, 490, 364-379.

- Efome, J., Baghbanzadeh, M., Rana, D., Matsuura, T., & Lan, C. (2015). Effects of superhydrophobic SiO₂ nanoparticles on the performance of PVDF flat sheet membranes for vacuum membrane distillation. *Desalination*, 373, 47-57.
- Esposito, E., Clarizia, G., Bernardo, P., Jansen, J., Sedláková, Z., & Izák, P. et al. (2015). Pebax®/PAN hollow fiber membranes for CO₂/CH₄ separation. *Chemical Engineering and Processing: Process Intensification*, 94, 53-61.
- Ezeji, T., Blaschek, H., & Scheffran, J. (2010). Biofuels from Agricultural Wastes and Byproducts. Ames, Iowa: Wiley-Blackwell.
- Flaconneche, B., Martin, J., & Klopffer, M. (2001). Permeability, Diffusion and Solubility of Gases in Polyethylene, Polyamide 11 and Poly (Vinylidene Fluoride). *Oil & Gas Science and Technology*, 56(3), 261-278.
- Freire, E., Bianchi, O., Martins, J., Monteiro, E., & Forte, M. (2012). Non-isothermal crystallization of PVDF/PMMA blends processed in low and high shear mixers. *Journal of Non-Crystalline Solids*, 358(18-19), 2674-2681.
- George, G., Bhorla, N., AlHallaq, S., Abdala, A., & Mittal, V. (2016). Polymer membranes for acid gas removal from natural gas. *Separation and Purification Technology*, 158, 333-356.
- Ghadimi, A., Mohammadi, T., & Kasiri, N. (2015). Gas permeation, sorption and diffusion through PEBA/SiO₂ nanocomposite membranes (chemical surface modification of nanoparticles). *International Journal of Hydrogen Energy*, 40(31), 9723-9732.
- Gilkeson, C., Toropov, V., Thompson, H., Wilson, M., Foxley, N., & Gaskell, P. (2014). Dealing with numerical noise in CFD-based design optimization. *Computers & Fluids*, 94, 84-97.
- Habibiannejad, S., Aroujalian, A., & Raisi, A. (2016). Pebax-1657 mixed matrix membrane containing surface modified multi-walled carbon nanotubes for gas separation. *RSC Adv.*, 6(83), 79563-79577.
- Hao, Y., Sano, R., Shimomura, A., Matsuyama, H., & Maruyama, T. (2014). Reorganization of the surface geometry of hollow-fiber membranes using dip-

- coating and vapor-induced phase separation. *Journal of Membrane Science*, 460, 229-240.
- Hoek, E., & Tarabara, V. (2013). Encyclopedia of Membrane Science and Technology.
- Hyder, M., Huang, R., & Chen, P. (2008). Effect of selective layer thickness on pervaporation of composite poly(vinyl alcohol)–poly(sulfone) membranes. *Journal of Membrane Science*, 318(1-2), 387-396.
- Iqbal, M., Man, Z., Mukhtar, H., & Dutta, B. (2008). Solvent effect on morphology and CO₂/CH₄ separation performance of asymmetric polycarbonate membranes. *Journal of Membrane Science*, 318(1-2), 167-175.
- Isanejad, M., & Mohammadi, T. (2018). Effect of amine modification on morphology and performance of poly (ether-block-amide)/fumed silica nanocomposite membranes for CO₂/CH₄ separation. *Materials Chemistry and Physics*, 205, 303-314.
- Islam, M., & Buschatz, H. (2017). Assessment of thickness-dependent gas permeability of polymer membranes. *Indian Journal of Chemical Technology*, 12, 88-92. Retrieved from <http://nopr.niscair.res.in/handle/123456789/8582>
- Jansen, J., Buonomenna, M., Figoli, A., & Drioli, E. (2006). Ultra-thin asymmetric gas separation membranes of modified PEEK prepared by the dry–wet phase inversion technique. *Desalination*, 193(1-3), 58-65.
- Ji, J., Liu, F., Hashim, N., Abed, M. and Li, K. (2015). Poly(vinylidene fluoride) (PVDF) membranes for fluid separation. *Reactive and Functional Polymers*, 86, 134-153.
- Jiang, X., Ding, J. and Kumar, A. (2008). Polyurethane–poly(vinylidene fluoride) (PU–PVDF) thin film composite membranes for gas separation. *Journal of Membrane Science*, 323(2), 371-378.
- Jomekian, A., Behbahani, R., Mohammadi, T., & Kargari, A. (2016). CO₂/CH₄ separation by high performance co-casted ZIF-8/Pebax 1657/PES mixed matrix membrane. *Journal of Natural Gas Science and Engineering*, 31, 562-574.

- Kacem, M., Pellerano, M., & Delebarre, A. (2015). Pressure swing adsorption for CO₂/N₂ and CO₂/CH₄ separation: Comparison between activated carbons and zeolites performances. *Fuel Processing Technology*, 138, 271-283.
- Kamide, K., Iijima, H., & Matsuda, S. (1993). Thermodynamics of Formation of Porous Polymeric Membrane by Phase Separation Method I. Nucleation and Growth of Nuclei. *Polymer Journal*, 25(11), 1113-1131.
- Kanagaraj, P., Nagendran, A., Rana, D., Matsuura, T., & Neelakandan, S. (2015). Separation of macromolecular proteins and rejection of toxic heavy metal ions by PEI/cSMM blend UF membranes. *International Journal of Biological Macromolecules*, 72, 223-229.
- Ke, K., Pötschke, P., Jehnichen, D., Fischer, D., & Voit, B. (2014). Achieving β -phase poly(vinylidene fluoride) from melt cooling: Effect of surface functionalized carbon nanotubes. *Polymer*, 55(2), 611-619.
- Khorshidi, B., Hajinasiri, J., Ma, G., Bhattacharjee, S., & Sadrzadeh, M. (2016). Thermally resistant and electrically conductive PES/ITO nanocomposite membrane. *Journal of Membrane Science*, 500, 151-160.
- Kim, K., Ingole, P., Kim, J., & Lee, H. (2013). Separation performance of PEBAX/PEI hollow fiber composite membrane for SO₂/CO₂/N₂ mixed gas. *Chemical Engineering Journal*, 233, 242-250.
- l'Abee, R., Goossens, H., & van Duin, M. (2008). Thermoplastic vulcanizates obtained by reaction-induced phase separation: Interplay between phase separation dynamics, final morphology and mechanical properties. *Polymer*, 49(9), 2288-2297.
- Lamikanra, O. (2002). Fresh-cut fruits and vegetables. Boca Raton, Fla: CRC Press.
- Le, N., Wang, Y., & Chung, T. (2011). Pebax/POSS mixed matrix membranes for ethanol recovery from aqueous solutions via pervaporation. *Journal of Membrane Science*, 379(1-2), 174-183.
- Li, Y., & Chung, T. (2010). Molecular-level mixed matrix membranes comprising Pebax® and POSS for hydrogen purification via preferential CO₂ removal. *International Journal of Hydrogen Energy*, 35(19), 10560-10568.

- Li, Y., Cao, C., Chung, T., & Pramoda, K. (2004). Fabrication of dual-layer polyethersulfone (PES) hollow fiber membranes with an ultrathin dense-selective layer for gas separation. *Journal of Membrane Science*, 245(1-2), 53-60.
- Li, Y., Li, X., Wu, H., Xin, Q., Wang, S., & Liu, Y. et al. (2015). Anionic surfactant-doped Pebax membrane with optimal free volume characteristics for efficient CO₂ separation. *Journal of Membrane Science*, 493, 460-469.
- Lin, Y. (2001). Microporous and dense inorganic membranes: current status and prospective. *Separation and Purification Technology*, 25(1-3), 39-55.
- Longwei Xu, L. X., Wang, C., Yu, J., Zhang, L., & Pan, Y. (2017). Enhanced permeation performance of polyether-polyamide block copolymer membranes through incorporating ZIF-8 nanocrystals. *Chinese Journal of Chemical Engineering*, 25(7), 882-891.
- Mahdavi, H., Razmi, F., & Shahalizade, T. (2016). Polyurethane TFC nanofiltration membranes based on interfacial polymerization of poly(bis-MPA) and MDI on the polyethersulfone support. *Separation and Purification Technology*, 162, 37-44.
- Mahmoudi, A., Asghari, M., & Zargar, V. (2015). CO₂/CH₄ separation through a novel commercializable three-phase PEBA/PEG/NaX nanocomposite membrane. *Journal of Industrial And Engineering Chemistry*, 23, 238-242.
- Mark, H., & Seidel, A. (2013). Encyclopedia of polymer science and technology. Hoboken, NJ: Wiley.
- Martins, P., Lopes, A., & Lanceros-Mendez, S. (2014). Electroactive phases of poly(vinylidene fluoride): Determination, processing and applications. *Progress in Polymer Science*, 39(4), 683-706.
- Meng, N., Priestley, R., Zhang, Y., Wang, H., & Zhang, X. (2016). The effect of reduction degree of GO nanosheets on microstructure and performance of PVDF/GO hybrid membranes. *Journal of Membrane Science*, 501, 169-178.
- Murali, R., A.F.Ismail, M.A.Rahman, & S.Sridhar. (2014). Mixed matrix membranes of Pebax-1657 loaded with 4A zeolite for gaseous separations. *Separation and Purification Technology*, 129, 1-8.

- Nafisi, V., & Hägg, M. (2014). Development of dual layer of ZIF-8/PEBAX-2533 mixed matrix membrane for CO₂ capture. *Journal of Membrane Science*, 459, 244-255.
- Noble, R. (2011). Perspectives on mixed matrix membranes. *Journal of Membrane Science*, 378(1-2), 393-397.
- Oprea, S., & Ciobanu, C. (2007). Effect of the Temperature of Polyurethane Wet-Casting Membrane Formation on the Physico-Mechanical Properties. *High Performance Polymers*, 20(2), 208-220.
- Page being updated | US EPA. (2017). Epa.gov. Retrieved 9 July 2017, from <http://epa.gov/climatestudents/solutions/technologies/methane.html>.
- Panar, M., Hoehn, H., & Hebert, R. (1973). *The Nature of Asymmetry in Reverse Osmosis Membranes. Macromolecules*, 6(5), 777-780.
- Rabiee, H., Meshkat Alsadat, S., Soltanieh, M., Mousavi, S., & Ghadimi, A. (2015). Gas permeation and sorption properties of poly(amide-12-b-ethyleneoxide)(Pebax1074)/SAPO-34 mixed matrix membrane for CO₂/CH₄ and CO₂/N₂ separation. *Journal of Industrial and Engineering Chemistry*, 27, 223-239.
- Rahman, M., Filiz, V., Shishatskiy, S., Abetz, C., Neumann, S., & Bolmer, S. et al. (2013). PEBAX® with PEG functionalized POSS as nanocomposite membranes for CO₂ separation. *Journal of Membrane Science*, 437, 286-297.
- Rahman, M., Filiz, V., Shishatskiy, S., Neumann, S., Khan, M., & Abetz, V. (2012). PEG Functionalized POSS Incorporated PEBAX Nanocomposite Membranes. *Procedia Engineering*, 44, 1523-1526.
- Rahman, M., Shishatskiy, S., Abetz, C., Georgopoulos, P., Neumann, S., & Khan, M. et al. (2014). Influence of temperature upon properties of tailor-made PEBAX® MH 1657 nanocomposite membranes for post-combustion CO₂ capture. *Journal of Membrane Science*, 469, 344-354.
- Rajabi, H., Ghaemi, N., Madaeni, S., Daraei, P., Astinchap, B., Zinadini, S., & Razavizadeh, S. (2015). Nano-ZnO embedded mixed matrix polyethersulfone (PES) membrane: Influence of nanofiller shape on characterization and fouling resistance. *Applied Surface Science*, 349, 66-77.

- Ray, R., Krantz, W., & Sani, R. (1985). Linear stability theory model for finger formation in asymmetric membranes. *Journal of Membrane Science*, 23(2), 155-182.
- Reichenbacher, M., & Popp, J. (2012). Challenges in molecular structure determination. Berlin: Springer.
- Rezac, M., & Koros, W. (1992). Preparation of polymer–ceramic composite membranes with thin defect-free separating layers. *Journal of Applied Polymer Science*, 46(11), 1927-1938.
- Robeson, L. (2008). The upper bound revisited. *Journal of Membrane Science*, 320(1-2), 390-400.
- Sawada, S., Ursino, C., Galiano, F., Simone, S., Drioli, E., & Figoli, A. (2015). Effect of citrate-based non-toxic solvents on poly(vinylidene fluoride) membrane preparation via thermally induced phase separation. *Journal of Membrane Science*, 493, 232-242.
- Shahid, S., & Nijmeijer, K. (2014). High pressure gas separation performance of mixed-matrix polymer membranes containing mesoporous Fe(BTC). *Journal of Membrane Science*, 459, 33-44.
- Sovacool, K., & Drupady, M. (2011). Innovation in the Malaysian waste-to-energy sector: applications with global potential. *The Electricity Journal*, 24 (5), 29-41.
- Sridhar, S., Suryamurali, R., Smitha, B., & Aminabhavi, T. (2007). Development of crosslinked poly(ether-block-amide) membrane for CO₂/CH₄ separation. *Colloids and Surfaces A: Physicochemical and Engineering Aspects*, 297(1-3), 267-274.
- Strathmann, H., Scheible, P., & Baker, R. (1971). A rationale for the preparation of Loeb-Sourirajan-type cellulose acetate membranes. *Journal of Applied Polymer Science*, 15(4), 811-828.
- Surya Murali, R., Praveen Kumar, K., Ismail, A., & Sridhar, S. (2014). Nanosilica and H-Mordenite incorporated Poly(ether-block-amide)-1657 membranes for gaseous separations. *Microporous and Mesoporous Materials*, 197, 291-298.

- Tsay, C., & McHugh, A. (1991). The combined effects of evaporation and quench steps on asymmetric membrane formation by phase inversion. *Journal of Polymer Science Part B: Polymer Physics*, 29(10), 1261-1270.
- Vinogradov, N., & Kagramanov, G. (2016). The development of polymer membranes and modules for air separation. *Journal of Physics: Conference Series*, 751, 012038.
- Wang, J., Zheng, L., Wu, Z., Zhang, Y., & Zhang, X. (2016). Fabrication of hydrophobic flat sheet and hollow fiber membranes from PVDF and PVDF-CTFE for membrane distillation. *Journal of Membrane Science*, 497, 183-193.
- Wang, S., Liang, S., Liang, P., Zhang, X., Sun, J., Wu, S., & Huang, X. (2015). In-situ combined dual-layer CNT/PVDF membrane for electrically-enhanced fouling resistance. *Journal of Membrane Science*, 491, 37-44.
- Wang, S., Liu, Y., Huang, S., Wu, H., Li, Y., Tian, Z., & Jiang, Z. (2014). Pebax-PEG-MWCNT hybrid membranes with enhanced CO₂ capture properties. *Journal of Membrane Science*, 460, 62-70.
- Wang, Y., Li, X., Cheng, C., He, Y., Pan, J., & Xu, T. (2016). Second interfacial polymerization on polyamide surface using aliphatic diamine with improved performance of TFC FO membranes. *Journal of Membrane Science*, 498, 30-38.
- Wang, Z., Chen, X., Li, K., Bi, S., Wu, C., & Chen, L. (2015). Preparation and catalytic property of PVDF composite membrane with polymeric spheres decorated by Pd nanoparticles in membrane pores. *Journal of Membrane Science*, 496, 95-107.
- What about the anaerobic digestion of biomass to make biogas? | CAT Information Service. (2017). Info.cat.org.uk. Retrieved 9 July 2017, from <http://info.cat.org.uk/questions/biomass/what-about-anaerobic-digestion-biomass-make-biogas/>
- Wijmans, J., & Baker, R. (1995). The solution-diffusion model: a review. *Journal of Membrane Science*, 107(1-2), 1-21.
- Xian, S., Xu, F., Ma, C., Wu, Y., Xia, Q., Wang, H., & Li, Z. (2015). Vapor-enhanced CO₂ adsorption mechanism of composite PEI-ZIF-8 modified by polyethyleneimine for CO₂/N₂ separation. *Chemical Engineering Journal*, 280, 363-369.

- Xing, R., & Ho, W. (2009). Synthesis and characterization of crosslinked polyvinylalcohol/polyethyleneglycol blend membranes for CO₂/CH₄ separation. *Journal of The Taiwan Institute of Chemical Engineers*, 40(6), 654-662.
- Xu, S., Chen, G. and Xu, Z. (2018). Excellent anti-fouling performance of PVDF polymeric membrane modified by enhanced CaA gel-layer. *Journal of Industrial and Engineering Chemistry*, 58, 179-188.
- Yoon, S. (2015). Membrane bioreactor processes. Boca Raton: CRC Press.
- Zha, T., Song, L., Chen, P., Nie, W., & Zhou, Y. (2015). Nonsolvent/solvent-induced phase separation to multi-porous sulfonated polystyrene/chitosan/silver particles and their application in adsorbing chromium ion(III) and reduction of methylene blue. *Colloids and Surfaces A: Physicochemical and Engineering Aspects*, 481, 423-430.
- Zhao, L., Riensche, E., Menzer, R., Blum, L., & Stolten, D. (2008). A parametric study of CO₂/N₂ gas separation membrane processes for post-combustion capture. *Journal of Membrane Science*, 325(1), 284-294.
- Zhao, D., Ren, J., Li, H., Hua, K., & Deng, M. (2014). Poly(amide-6-b-ethylene oxide)/SAPO-34 mixed matrix membrane for CO₂ separation. *Journal of Energy Chemistry*, 23(2), 227-234.
- Zhao, D., Ren, J., Li, H., Li, X., & Deng, M. (2014). Gas separation properties of poly(amide-6-b-ethylene oxide)/amino modified multi-walled carbon nanotubes mixed matrix membranes. *Journal of Membrane Science*, 467, 41-47.
- Zhong, Z., Li, D., Zhang, B., & Xing, W. (2012). Membrane surface roughness characterization and its influence on ultrafine particle adhesion. *Separation and Purification Technology*, 90, 140-146.
- Zhu, W., Gao, J., Sun, S., Zhang, S., & Chung, T. (2015). Poly(amidoamine) dendrimer (PAMAM) grafted on thin film composite (TFC) nanofiltration (NF) hollow fiber membranes for heavy metal removal. *Journal of Membrane Science*, 487, 117-126.
- Zhuang, G., Wey, M., & Tseng, H. (2015). The density and crystallinity properties of PPO-silica mixed-matrix membranes produced via the in situ sol-gel method for

H₂/CO₂ separation. II: Effect of thermal annealing treatment. *Chemical Engineering Research and Design*, 104, 319-332.

Zulhairun, A., Ng, B., Ismail, A., Surya Murali, R., & Abdullah, M. (2014). Production of mixed matrix hollow fiber membrane for CO₂/CH₄ separation. *Separation and Purification Technology*, 137, 1-12.